Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

-1(Currently Amended)-

A herbaceous transgenic plant which degrades lignocellulose when the transgenic plant is ground to produce a plant material comprising:

(a) at least one DNA encoding a cellulase wherein this one DNA is comprised of DNA in sequences selected from the group consisting of SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8 and SEQ ID NO: 10 ~~an endoglucanase gene, an exoglucanase gene, a dextranase gene, and a beta-glucosidase gene~~ which is operably linked to a nucleotide sequence encoding a signal peptide wherein the signal peptide directs the cellulase to a plastid or apoplast of the transgenic plant; and

(b) at least one DNA encoding a ligninase comprising a lignin peroxidase gene, wherein this one DNA is comprised of DNA in sequences selected from the group consisting of SEQ ID NO: 11 and SEQ ID NO: 13 which is operably linked to a nucleotide sequence encoding a signal peptide wherein the signal peptide directs the ligninase to the plastid or apoplast of the transgenic plant,

wherein the transgenic plant degrades the lignocellulose when ground to produce the plant material.

-2(Original)-

The transgenic plant of Claim 1 wherein the DNA encoding the cellulase is from an organism selected from the group consisting of *Trichoderma reesei, Acidothermus cellulyticus, Streptococcus salivarius, Actinomyces naeslundi,* and *Thermomonospora fusca*.

-3(Original)-

The transgenic plant of Claim 1 wherein the DNA encoding the cellulase is selected from the group consisting of an e1 gene from Acidothermus cellulyticus, a *cbh1* gene from *Trichoderma reesei,* a dextranase gene from *Streptococcus salivarius*, and a beta-glucosidase gene from *Actinomyces naeslundi*.

-4(Original)-

The transgenic plant of Claim 3 wherein the e1 gene comprises the nucleotide sequence set forth in SEQ ID NO:4, the cbh1 gene comprises the nucleotide sequence set forth in SEQ ID NO:10, the dextranase gene comprises the nucleotide sequence set forth in SEQ ID NO:8, and the beta-glucosidase

gene comprises the nucleotide sequence set forth in SEQ ID NO:6.

-5(Original)-

The transgenic plant of Claim 1 wherein the DNA encoding the ligninase is from *Phanerochaete chrysosporium*.

-6(Original)-

The transgenic plant of Claim 5 wherein the ligninase is *ckg*4 comprising the nucleotide sequence set forth in SEQ ID NO:11 or *ckg*5 comprising the nucleotide sequence set forth in SEQ ID NO:13.

-7(Original)-

The transgenic plant of Claim 1 wherein the DNA encoding the cellulase and the DNA encoding the ligninase are each operably linked to a leaf-specific promoter.

-8(Original)-

The transgenic plant of Claim 7 wherein the leaf-specific promoter is a promoter for *rbc*S.

-9(Original)-

The transgenic plant of Claim 1 wherein the nucleotide sequence encoding the signal peptide encodes a signal peptide of *rbcS*.

-10(Original)-

The transgenic plant of Claim 8 or 9 wherein the *rbcS* comprises the nucleotide sequence set forth in SEQ ID NO:1.

-11(Previously amended)-

The transgenic plant of Claim 1 selected from the group consisting of maize, wheat, barley, rye, hops, hemp, rice, potato, soybean, sorghum, sugarcane, clover, tobacco, alfalfa, and arabidopsis.

-12(Original)-

The transgenic plant of Claim 1 wherein the DNA encoding the cellulase and the DNA encoding the ligninase are stably integrated into nuclear or plastid DNA of the transgenic plant.

-13(Original)-

The transgenic plant of Claim 1 wherein transgenic plant further includes a DNA encoding a selectable marker operably linked to a constitutive promoter.

-14(Original)-

The transgenic plant of Claim 13 wherein the DNA encoding the selectable marker provides the transgenic plant with resistance to an antibiotic, an herbicide, or to environmental stress.

-15(Original)-

The transgenic plant of Claim 14 wherein the DNA encoding resistance to the herbicide is a DNA encoding phosphinothricin acetyl transferase which confers resistance to the herbicide phosphinothricin.

Claim 16(Cancelled)

-17(Previously amended)-

The transgenic plant of Claim 1 wherein the plastid of the transgenic plant is a chloroplast.

Claims 18 to 46 (Cancelled)

-47(Currently amended)-

A method for producing a herbaceous transgenic plant which degrades lignocellulose when the transgenic plant is ground to produce a plant material comprising:

(a) providing a first transgenic plant which includes a DNA encoding a cellulase, wherein this one DNA is comprised of DNA in sequences wherein the DNA encoding the cellulase is selected from the group consisting of SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8 and SEQ ID NO: 10 ~~an endoglucanase gene, an exoglucanase gene, a dextranase gene, and a beta-glucosidase gene~~ which is operably linked to a nucleotide sequence encoding a signal peptide wherein the signal peptide directs the cellulase to a plastid or apoplast of the transgenic plant and a second transgenic plant which includes a DNA encoding a ligninase comprising a lignin peroxidase gene wherein this one DNA is comprised of DNA in sequences selected from the group consisting of SEQ ID NO: 11 and SEQ ID NO: 13 which is operably linked to a nucleotide sequence encoding a signal peptide wherein the signal peptide directs the ligninase to the plastid or apoplast of the transgenic plant; and

(b) mating by sexual fertilization the first and the second transgenic plants to produce a third transgenic plant which includes the first DNA encoding the cellulase and

the second DNA encoding the ligninase,

wherein the transgenic plant degrades the lignocellulose when ground to produce the plant material.

-48(Original)-

The method of Claim 47 wherein the DNA encoding the cellulase is from an organism selected from the group consisting of *Trichoderma reesei*, *Acidothermus cellulyticus*, *Streptococcus salivarius*, *Actinomyces naeslundi*, and *Thermomonospora fusca*.

-49(Original)-

The method of Claim 47 wherein the DNA encoding the cellulase is selected from the group consisting of an e1 gene from Acidothermus cellulyticus, a *cbh*1 gene from *Trichoderma reesei*, a dextranase gene from *Streptococcus salivarius*, and a beta-glucosidase gene from *Actinomyces naeslundi*.

-50(Original)-

The method of Claim 49 wherein the *e*1 gene comprises the nucleotide sequence set forth in SEQ ID NO:4, the *cbh*1 gene comprises the nucleotide sequence set forth in SEQ ID NO:10, the dextranase gene comprises the nucleotide sequence set forth in SEQ ID NO:8, and the beta-glucosidase gene comprises the nucleotide sequence set forth in SEQ ID NO:6.

-51(Original)-

The method of Claim 47 wherein the DNA encoding the ligninase is from *Phanerochaete chrysosporium*.

-52(Original)-

The method of Claim 51 wherein the ligninase is *ckg*4 comprising the nucleotide sequence set forth in SEQ ID NO:11 or *ckg*5 comprising the nucleotide sequence set forth in SEQ ID NO:13.

-53(Original)-

The method of Claim 47 wherein the DNA encoding the cellulase and the DNA encoding the ligninase are each operably linked to a leaf-specific promoter such as a promoter for *rbc*S.

-54(Original)-

The method of Claim 53 wherein the leaf-specific promoter is a promoter for *rbc*S.

-55(Original)-

The method of Claim 47 wherein the nucleotide sequence encoding the signal peptide encodes a signal peptide of *rbc*S.

-56(Original)-

The method of Claim 54 or 55 wherein the *rbc*S comprises the nucleotide sequence set forth in SEQ ID NO:1.

-57(Previously amended)-

The method of Claim 47 selected from the group consisting of maize, wheat, barley, rye, hops, hemp, rice, potato, soybean, sorghum, sugarcane, clover, tobacco, alfalfa, and arabidopsis.

-58(Original)-

The method of Claim 47 wherein the DNA encoding the cellulase and the DNA encoding the ligninase are stably integrated into nuclear or plastid DNA of the transgenic plant.

-59(Original)-

The method of Claim 47 wherein the first, second, or both transgenic plants further includes a DNA encoding a selectable marker operably linked to a constitutive promoter.

-60(Original)-

The method of Claim 59 wherein the DNA encoding the selectable marker provides the transgenic plant with resistance to an antibiotic, an herbicide, or to environmental stress.

-61(Original)-

The method of Claim 60 wherein the DNA encoding resistance to the herbicide is a DNA encoding phosphinothricin acetyl transferase which confers resistance to the herbicide phosphinothricin.

Claim 62(Cancelled)

-63(Previously amended)-

The method of Claim 47 wherein the plastid of the transgenic plant is a chloroplast.

-64(Original)-

The method of Claim 47 wherein progeny of the third transgenic plant are mated by sexual fertilization to a transgenic plant selected from the group consisting of the first, second, and third transgenic plants to produce a transgenic plant comprising multiples of genes encoding cellulases and ligninases.

-65(Currently amended)-

A method for converting lignocellulose in a herbaceous plant material to fermentable sugars comprising:

(a) providing a herbaceous transgenic plant which includes at least one DNA encoding a cellulase, wherein this one DNA is comprised of DNA in sequences selected from the group consisting of SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8 and SEQ ID NO: 10 ~~an endoglucanase gene, an exoglucanase gene, a dextranase gene, and a beta-glucosidase gene~~ which is operably linked to a nucleotide sequence encoding a signal peptide wherein the signal peptide directs the cellulase to a plastid or apoplastid of the transgenic plant and a at least one DNA encoding a ligninase comprising a lignin peroxidase gene wherein this one DNA is comprised of DNA in sequences selected from the group consisting of SEQ ID NO: 11 and SEQ ID NO: 13 which is operably linked to a nucleotide sequence encoding a signal peptide wherein the signal peptide directs the ligninase to the plastid or apoplastid of the transgenic plant;

(b) growing the transgenic plant for a time sufficient for the transgenic plant to accumulate a sufficient amount of the cellulase and the ligninase in the plastid or apoplastid of the transgenic plant;

(c) harvesting the transgenic plant which has

accumulated the cellulase and ligninase in the plastid or apoplastid of the transgenic plant;

(d) grinding the transgenic plant for a time sufficient to produce the plant material wherein the cellulase and ligninase produced by the transgenic plant are released from the plastid or apoplastid of the transgenic plant;

(e) incubating the plant material for a time sufficient for the cellulase and ligninase in the plant material to produce the fermentable sugars from the lignocellulose in the plant material; and

(f) extracting the fermentable sugars produced from the lignocellulose by the cellulase and the ligninase from the plant material.

-66(Original)-

The method of Claim 65 wherein the DNA encoding the cellulase is from an organism selected from the group consisting of *Trichoderma reesei*, *Acidothermus cellulyticus*, *Streptococcus salivarius*, *Actinomyces naeslundi*, and *Thermomonospora fusca*.

-67(Original)-

The method of Claim 65 wherein the DNA encoding the cellulase is selected from the group consisting of an *e*1 gene from Acidothermus cellulyticus, a *cbh*1 gene from *Trichoderma reesei*, a dextranase gene from *Streptococcus salivarius*, and a beta-glucosidase gene from *Actinomyces naeslundi*.

-68(Original)-

The method of Claim 67 wherein the *e*1 gene comprises the nucleotide sequence set forth in SEQ ID NO:4, the *cbh*1 gene comprises the nucleotide sequence set forth in SEQ ID NO:10, the dextranase gene comprises the nucleotide sequence set forth in SEQ ID NO:8, and the beta-glucosidase gene comprises the nucleotide sequence set forth in SEQ ID NO:6.

-69(Original)-

The method of Claim 65 wherein the DNA encoding the ligninase is from *Phanerochaete chrysosporium*.

-70(Original)-

The method of Claim 69 wherein the ligninase is *ckg*4 comprising the nucleotide sequence set forth in SEQ ID NO:11 or *ckg*5 comprising the nucleotide sequence set forth in SEQ ID NO:13.

-71(Original)-

The method of Claim 65 wherein DNA encoding the cellulase and the DNA encoding the ligninase are each operably linked to a leaf-specific promoter.

-72(Original)-

The transgenic plant of Claim 71 wherein the leaf-specific promoter is a promoter for *rbc*S.

-73(Original)-

The method of Claim 65 wherein the nucleotide sequence encoding the signal peptide encodes a signal peptide of *rbc*S.

-74(Original)-

The method of Claim 72 or 73 wherein the *rbc*S comprises the nucleotide sequence set forth in SEQ ID NO:1.

-75(Previously amended)-

The method of Claim 65 selected from the group consisting of maize, wheat, barley, rye, hops, hemp, rice, potato, soybean, sorghum, sugarcane, clover, tobacco, alfalfa, and arabidopsis.

-76(Original)-

The method of Claim 65 wherein the first and second DNAs are stably integrated into nuclear or plastid DNA of the transgenic plant.

-77(Original)-

The method of Claim 65 wherein transgenic plant further includes a DNA encoding a selectable marker operably linked to a constitutive promoter.

-78(Original)-

The method of Claim 77 wherein the DNA encoding the selectable marker provides the transgenic plant with resistance to an antibiotic, an herbicide, or to environmental stress.

-79(Original)-

The method of Claim 78 wherein the DNA encoding resistance to the herbicide is a DNA encoding phosphinothricin acetyl transferase which confers resistance to the herbicide phosphinothricin.

Claim 80-(Cancelled)

-81(Previously amended)-

The method of Claim 65 wherein the plastid of the transgenic plant is a chloroplast.

-82(Original)-

The method of Claim 65 wherein the plant material further includes a plant material made from a non-transgenic plant.

Claims 83 - 99 (Cancelled)

-100(Original)-

The transgenic plant of Claim 1 wherein the lignocellulose is degraded ~~degrade~~ to fermentable sugars.

Claim 101(Cancelled)

-102(Original)-

The method of Claim 47 wherein the lignocellulose is degraded to fermentable sugars.

-103(Original)-

The method of Claim 65 wherein the fermentable sugars are fermented to ethanol.

Claim 104 (Cancelled)